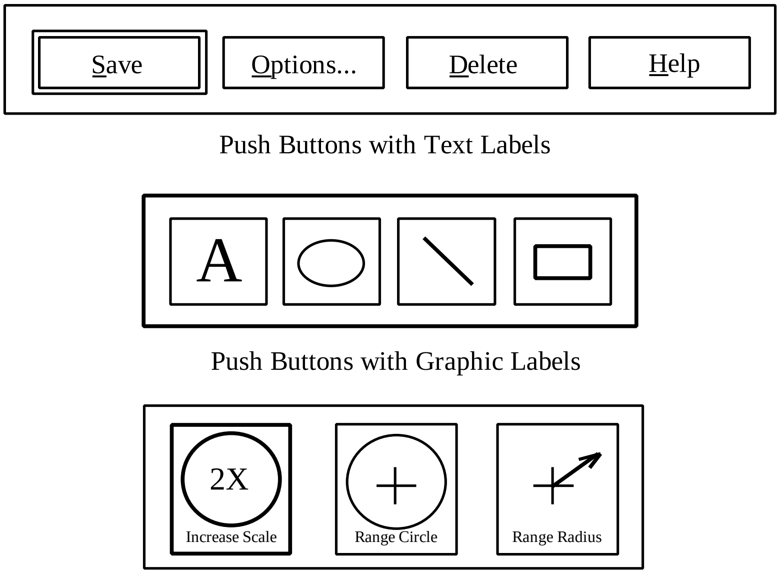
6. Controls[1]

6.1 Push Buttons

6.1.1 Appearance

A push button is used to initiate an action. The button contains a label that is text, graphic, or both (as shown in figure 6-1) and identifies the action executed when the button is activated. The label is centered in the button, with enough space between it and the button so as not to restrict its legibility. The push button designated as the default has an extra border or outline around it.



Push Buttons with Text Labels

Push Buttons with Graphic Labels

Push Buttons with Graphic and Text Labels

Figure 6-1. Example push buttons with text labels, graphic labels, or both.

All of the push buttons in a group are the same size, with equal spacing between buttons, and use the same type of label (i.e., text, graphic, or both). If the labels are text, the buttons are wide enough to display the longest text. If the labels are graphic, the buttons are large enough to display the largest graphic. Exceptions may occur in order to accommodate a button with a label that is significantly longer or larger than the others in the group, especially when space in a window is limited. A text label includes an ellipsis if additional information is needed from users before the action can be executed. The first letter of each word in the label is capitalized, except for prepositions and articles. If a push button cannot be activated, its label is grayed out to indicate its unavailability.

If the application implements push buttons for any of the actions listed in appendix C, it uses the vocabulary listed in this appendix. If new vocabulary is created, the button label is a verb and stated in active voice; the label describes the results of pressing the button and identifies the action

[1] Tree-view and list-view controls will be addressed in a future version of this document.

that will be taken by the application rather than the user. The names of actions are congruent (e.g., Save/Delete, On/Off, In/Out), with the same vocabulary used to describe an action throughout the application. Terms such as "All" are used in labels (e.g., Select All, Delete All) only when there is no ambiguity as to the set of objects to which All refers; if a label can have multiple referents, the name of the object is used instead of All.

Appendix D lists graphics for some of the common actions used in Motif and MS Windows. If the application implements push buttons with graphic labels for any of these actions, it uses the graphics listed in this appendix. If new graphics are created, they are designed so users can easily identify the action performed when the button is selected. Each graphic is unambiguous and easily distinguished from the other graphics with which it is displayed. Graphics that represent opposite functions (e.g., Save, Delete) are designed to mirror each other. The graphic does not contain an ellipsis, even if a window opens when the push button is activated. Section 8.1.3 describes the design of buttons in toolbars.

Menu buttons. A menu button, shown in figure 6-2, is a push button that displays a menu. The button label includes a down-pointing arrow to indicate the presence of the menu. Menu options are designed in accordance with guidelines in section 5.5. Pressing or clicking BLeft on a menu button displays the menu; releasing or clicking BLeft on an option dismisses the menu and activates the option. Clicking BLeft outside the button or on the button a second time dismisses the menu without activating an option.

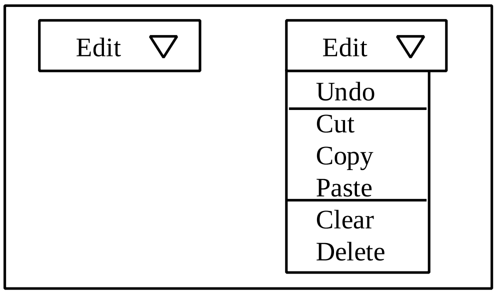


Figure 6-2. Example menu button in Motif.

6.1.2 Behavior

Pressing BLeft on a push button moves focus to it (and it highlights); releasing BLeft executes the action represented by the push button. Releasing BLeft outside the push button does not execute the action. When a push button has focus, SPACE activates it from the keyboard. RETURN activates the default push button in a window.

6.2 Radio Buttons

6.2.1 Appearance

Radio buttons are used in groups to select one option from a set of mutually exclusive options. A radio button consists of a circular indicator and a label describing the state being set, as shown in figure 6-3.[2] The indicator is placed to the left of the label. The first letter of each word in the label is capitalized, except for prepositions and articles. If a radio button cannot be selected, its label is grayed out to indicate its unavailability. Radio buttons are presented in groups consisting of at least two but no more than seven options.

Motif Only: The state of a radio button is either on or off. When a group of radio buttons is displayed, one of them is selected (i.e., its state is on). If users need to select none of the buttons in the group, a radio button labeled None is provided as an option, rather than allowing users to deselect all of the buttons in the group.

MS Windows Only: The state of a radio button can be on, off, or indeterminate (i.e., has a mixed-value state). When a group of radio buttons is displayed and the state is determinate, one of them is selected. When a group of radio buttons is displayed and the state is indeterminate, all of them are deselected; clicking BLeft on a button changes its state to selected and all of the other buttons in the group to deselected.

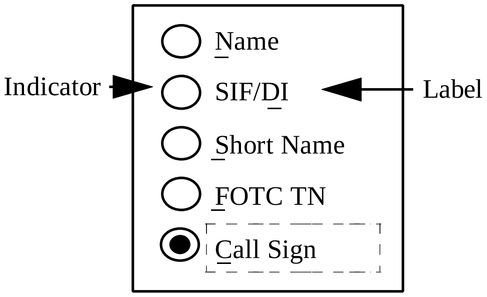


Figure 6-3. Example radio button group in MS Windows.

6.2.2 Behavior

Clicking BLeft on a radio button indicator or label selects the button. When a radio button is selected, a dot is placed in its indicator or the indicator is filled, and any previously selected button in the group is deselected. Only the select state of the option changes; selecting a radio button does not change the label, initiate an action, or open a dialog window.

Motif Only: When a radio button has focus, SPACE selects it.

MS Windows Only: Moving focus to a radio button also selects it.

6.3 Check Boxes

6.3.1 Appearance

Check boxes are used singly or in a group to indicate a nonexclusive setting. A check box consists of a square-shaped indicator and a label describing the state being set, as shown in figure 6-4. The indicator is placed to the left of the label. The first letter of each word in the label is

[2] Radio buttons in previous versions of Motif had diamond-shaped indicators.

capitalized, except for prepositions and articles. If a check box cannot be selected, its label is grayed out to indicate its unavailability. A check box (rather than two radio buttons) is used if the state of a setting can only be on or off.

> Motif Only: When a check box is displayed, its state is either on or off.
>
> MS Windows Only: When a check box is displayed, its state can be on, off, or indeterminate. When the state is indeterminate, the check box indicator is filled with a shaded pattern. Clicking BLeft on a check box in an indeterminate state changes it to selected, clicking on it a second time changes its state from selected to unselected, and clicking on it a third time changes its state from unselected to indeterminate.

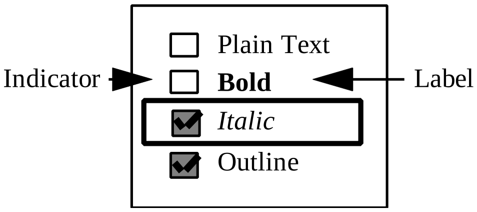


Figure 6-4. Example check box group in Motif.

6.3.2 Behavior

Clicking BLeft on a check box indicator or label selects the check box. When a check box is selected, a check graphic is placed in its indicator; if the check box is part of a check box group, any previously selected option in the group remains selected. When a check box is selected, only its select state changes; selecting a check box does not change the label, initiate an action, or open a dialog window. When a check box has focus, SPACE selects it.

6.4 Scroll Bars

6.4.1 Appearance

Scroll bars are used to view information when it exceeds the space available to display it. Vertical scroll bars control backward and forward movement; horizontal scroll bars control left and right movement. A scroll bar contains a scroll bar shaft, a scroll box, and scroll arrows, as shown in Figure 6-5. The scroll bar shaft represents the length of the information that users can scroll, while the scroll box represents the visible portion of the information. The relative position of the scroll box indicates the relative position of the information currently displayed in the window. The size of the scroll box is proportional to the amount of information that is visible; the scroll box fills the shaft if all of the information is visible. The scroll arrows scroll incrementally through the information and indicate the direction of the scrolling movement. Users can scroll to the top or the bottom of the information but not beyond.

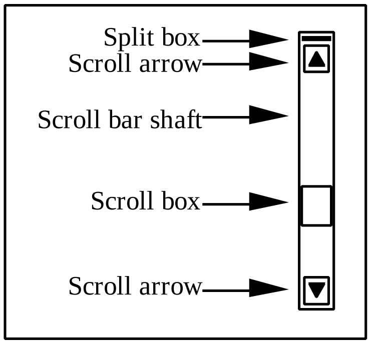


Figure 6-5. Components of a scroll bar in MS Windows.

A scroll bar is displayed whenever the information being viewed exceeds the space available to display it. The scroll bar remains displayed even if the information no longer requires scrolling (e.g., the items in a list fit within the display area). If scroll bars are included in a scrollable control or window, they are located to the right and at the bottom of the scrollable area.

6.4.2 Behavior

Clicking BLeft on a scroll arrow scrolls in one-unit increments (e.g., one line or column) in the arrow direction. Clicking BLeft on the scroll bar shaft scrolls one length or width of the visible area at a time (minus one unit for overlap). Dragging the scroll box with BLeft scrolls the visible area in the pointer direction; moving the pointer outside the scroll bar stops scrolling.

Motif Only: ESC returns the scroll box to its original position.

Pressing BLeft on a scroll arrow or on the scroll bar shaft autorepeats scrolling as long as the pointer is over the arrow or shaft. Scrolling stops when the pointer moves off these components and resumes when the pointer moves back over them. Scrolling occurs automatically when users drag an object to the edge of a scroll bar; scrolling is in the direction of the drag.

When a scrollable area (e.g., a text box or list box) has focus, the arrow keys scroll one increment in the arrow direction. CTRL in combination with the arrow keys scroll one large increment in the arrow direction. PAGEUP, PAGEDOWN, CTRL+PAGEUP, and CTRL+PAGEDOWN scroll one page in the specified direction. HOME or CTRL+HOME and END or CTRL+END scroll to the beginning and end of the scrollable region.

6.5 Split Boxes (MS Windows Only)

6.5.1 Appearance

A split box is used to divide a window into panes and then adjust the size of the viewing areas. A split box is a solid box located at the top of a vertical scroll bar (as shown in figure 6-5) or at the left end of a horizontal scroll bar. When a window is split, a split bar serves as the boundary between the panes, with scroll bars provided if the panes require scrolling. Users can scroll each pane (i.e., perpendicular to the direction of the split) independently within the window.

6.5.2 Behavior

Dragging the split box with BLeft divides the window into separate panes and displays a split bar. Dragging the split box or split bar to either end of the window closes the pane in the direction of the drag.

If the window includes a Split option in the Window or View menu, activating this option splits the window (e.g., in the middle). If desired, the application can also enable split mode and move the location cursor to the split box. If split mode is enabled, the arrow keys move the split bar in the arrow direction; RETURN sets the location of the split bar and exits split mode. ESC cancels the split and exits split mode.

6.6 Sashes (Motif Only)

6.6.1 Appearance

A sash is used to adjust the size of the viewing areas in a paned window. The sash is the handle on the separator that serves as the boundary between the panes, as shown in figure 6-6. The sash is placed near the right end of the separator in a vertically-split paned window and near the bottom end of the separator in a horizontally-split paned window. The sash is defined as a tab group in the window.

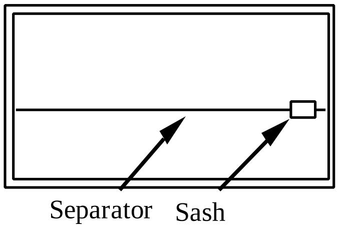


Figure 6-6. Example sash in Motif.

6.6.2 Behavior

Dragging the sash with BLeft moves the boundary between the panes in the pointer direction. Making one pane larger makes the other pane smaller but does not affect the overall size of the window. When a sash has focus, the arrow keys move the sash in the arrow direction. CTRL in combination with the arrow keys move the sash one large increment in the arrow direction.

6.7 Tabbed Pages[3]

6.7.1 Appearance

Tabbed pages are used to display multiple views of information within a single window. For example, tabbed pages, shown in figure 6-7, can be used in a Properties window to display the attributes for an object (e.g., the name, style, and size of font). The tab on each page includes a label describing the content of the page. The label can be text, graphic, or both. If the label is text, the first letter of each word is capitalized, except for prepositions and articles. If the label includes both text and graphics, they are centered in the tab, with the icon to the left of the text.

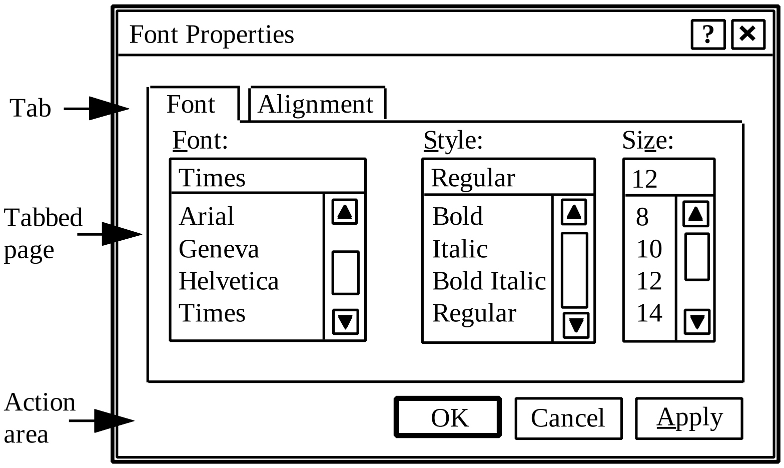


Figure 6-7. Example tabbed pages in MS Windows.

Tabs may be placed along any of the four sides of the page. However, tabs are not placed on more than one side (e.g., along the top and bottom). If tabs are placed along the left or right sides of the page, their labels are rotated 90 degrees so they are oriented for normal reading. All of the tabs in a window are the same width and are wide or large enough to display the longest text or largest graphic. If necessary, the size of a single tab can be made larger to accommodate its contents, or the text in the label can be truncated and followed by an ellipsis. The tabs in a window are normally displayed in a single row. A tiered tab window (i.e., with multiple rows of tabs) is used if the number of pages exceeds the space available in a window.

Tabbed pages can be used to organize and display the controls in a window. Groups of related controls are presented on each page. An action area (see section 8.2.3) can be defined on each page or outside the pages on the window itself. If push buttons are placed on the page, their actions apply only to the controls on the page; users have to save any unsaved changes before switching to a different page. If the push buttons are placed outside the page, their actions apply to the controls across all of the pages in the window.

[3] Although tabbed pages are not supported in the CDE version of Motif, an application may make use of or create a custom version of a tabbed page widget. If a Motif application implements a tabbed page, it has the appearance and behavior described here.

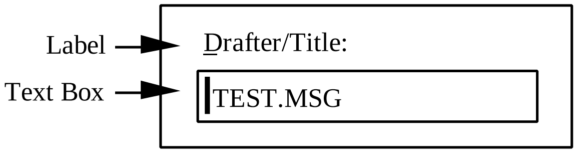
6.7.2 Behavior

Clicking BLeft on a tab raises that page to the foreground and assigns focus to the page. When a tab has focus, the arrow keys navigate one page or group of pages in the arrow direction and raise it to the foreground. Keyboard navigation on this page traverses all of the tab groups on the page before navigating off the page.

6.8 Text Boxes

6.8.1 Appearance

A text box, shown in figure 6-8, is used to enter and edit text. If the text is a fixed length, the text box is the same length as the text string. If the text varies in length, the text box is as long as the longest text string so that the text does not scroll out of view when users type to the end of the text box. The text box can support a single line or multiple lines of text entry and includes scroll bars if the text being entered exceeds the space available. In cases where the text being entered is excessively long (e.g., descriptors or directory paths) and/or space within a window is extremely limited, the text box can be sized so that the text string is longer than the width of the box. Text scrolling is enabled, with HOME and END scrolling to the beginning and end of the text string.



Drafter/Title:

TEST.MSG

Figure 6-8. Example text box and label in MS Windows.

If entries such as date, time, latitude, and longitude are broken into chunks and entered in separate text boxes, the format used is meaningful to users (e.g., year, month, and day in a date) and consistent with their expectations. If desired, these entries can be included in a single "smart" text box that traps user keystrokes and provides feedback to users that they are entering the correct characters. A "smart" text box may optionally provide a format template that guides users to enter the correct sequence of characters. For example, a text box for entering Social Security number may be displayed initially as "XXX-XX-XXXX;" as the user types, only numeric characters would be allowed, and the text cursor would automatically jump the hyphens.

Routine or default data, data already known by the application, and data that can be computed by the application is automatically entered whenever possible. For example, if text boxes are provided for the start date, end date, and duration of a mission, users enter only two of the values and the application calculates the third.

The application includes a label with the text box to describe what is to be entered. The first letter of each word in the label is capitalized, except for prepositions and articles. The label is placed to the left of or above the text box and is followed by a colon. The label is grayed out if the text box is unavailable for text entry.

When a text box has focus, cues about format are presented with the text box or displayed in the status bar (if one is present). If a unit of measurement (e.g., feet, miles) is always associated with a text box, it can be displayed as part of the label (i.e., preceding the text box) or placed to the right of the text box, as shown in figure 6-9. Cues about whether text entry is mandatory or optional are provided in the label or are color coded in the text box itself; if the window has a status bar, these cues can be provided there.

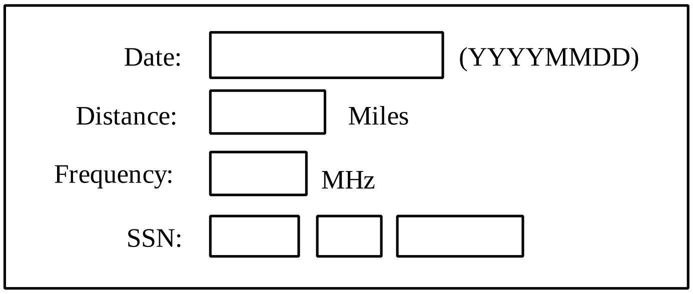


Figure 6-9. Example text box labels providing format cues.

<u>Text-display boxes</u>. The application is expected to display editable text in a text box and noneditable text in a label. If the application needs to display text that users can select (e.g., to perform a transfer operation) but cannot change, it can use a text-display box to do so. A text-display box has a different appearance (e.g., flat border, different background color) than a text box to indicate that it is not editable.

6.8.2 Behavior

6.8.2.1 Assigning Focus to a Text Box

Placing the pointer over a text box changes the pointer shape to an I-beam. Clicking BLeft on a text box moves focus to it and displays a text cursor in the box. If the box is empty, the text cursor is placed in the top leftmost part of the box. If the box contains text, the text cursor is placed between the characters under the pointer. If the pointer is beyond the end of the text, the text cursor is placed following the final text character. TAB moves focus to a text box from the keyboard and highlights any text present in the text box; if a text cursor is displayed, it appears at the end of the text. In a block of text, the arrow keys move the text cursor one character or one line in the direction indicated by the arrow.

The text cursor flashes when the text box has focus. When the text box loses focus, the application can either remove the cursor from view or keep it visible but gray it out. If the text cursor is removed, it reappears at the same location when the text box regains focus. If the cursor is grayed out, it stops flashing when the text box loses focus, and then returns to normal appearance and resumes flashing when the text box regains focus. Text entry is possible only after the text cursor is visible at a location that can accept text entry. Text entry is not possible (i.e., is not accepted by the application) when the text cursor is not visible.

6.8.2.2 Text Entry and Editing

The application uses insert mode as the default for text entry and provides access to both text entry modes so that users can select the one that is more efficient given the task being performed. For example, users are able to select replace mode for text entry in fields with predefined attributes (e.g., latitude/longitude and date-time group), but insert mode for free text input (e.g., the text of a message). The application does not restrict users to a single mode within a text area or arbitrarily switch between modes as users move from one area to another.

When variable-length text is entered, it is automatically justified or truncated; users do not have to enter leading characters to fill the space available. Text boxes that contain only numbers justify the value to the right. Text is displayed as typed (with the same capitalization and punctuation) unless a special format is required (e.g., composing a message). Numbers can be entered from either the keyboard or the numeric keypad. In a multi-line text box, word wrap is enabled so that words automatically wrap to the beginning of the next line.

The amount of text that has to be entered is minimized; for example, users can enter an abbreviation rather than an entire word and do not have to enter the unit of measurement associated with a number value. If the application supports geographic position hooking (i.e., it allows users to click on a map location and have the coordinates of the position entered into a lat/long field), it indicates when this feature is available (e.g., in the label of the text box, with a special symbol next to the text box).

Users can enter text or skip the text box as desired; the application does not force them to enter mandatory text before moving to the next text box or to move through a series of text boxes in a fixed sequence. If a text box contains a default value, tabbing into and out of the box does not affect the default. If users modify the default but do not save the change, the value in the text box reverts to the default when the window containing the text box is opened again.

Autotabbing is available only when related text boxes support entry of a long text string (e.g., date, time, latitude/longitude). In this case, autotabbing can be used since users consider the characters to be a single data value and expect to enter the data without the need to tab between the text boxes; while separate text boxes are intended to improve readability and minimize the opportunity for error, they should not interfere with efficient data entry by users.

6.8.2.3 Error Checking and Correction

The application performs error checking on the data entered and provides feedback when errors are detected. Users can fix errors by editing individual characters, rather than having to erase and retype the entire text string.

When users enter data in text boxes, they are informed of an error (e.g., data in an incorrect format or outside range requirements) when they tab out of the text box but they are not prevented from leaving the text box. Error feedback is provided in the status bar of the window if one is present; otherwise, feedback is provided by changing the appearance of the text box with the error and/or in a separate message window. When users enter data that are interdependent (i.e., input in one text box is correct or in error based on entries in other text boxes), they receive feedback (e.g., in the status bar or a message window) concerning the errors when they attempt to commit or save the data.

Users can save text input at any time by executing an explicit action (e.g., activating a Save, Apply, or OK push button). The application informs them if any errors are present and does not commit (i.e., save) the data until all errors are corrected. The application provides feedback (e.g., a confirmation message) to indicate the data have been saved. When users commit data, all are saved, regardless of text cursor position in the window.

6.9 List Boxes

6.9.1 Appearance

A list box, shown in figure 6-10, is used to select from a set of items. The items are displayed vertically, with one item per line. The list box includes a vertical scroll bar to the right of the list when the number of items exceeds the space available. The scroll bar remains displayed but is disabled when the content of the list box no longer requires scrolling (e.g., the window is resized larger so that more list items are visible). The application includes a label with the list that describes its purpose or contents; the label is placed above the list box, aligned with the left edge of the box, and can be followed by a colon. The first letter of each word in the label is capitalized, except for prepositions and articles. The label is grayed out if the list box is unavailable for selection. If an item in the list is unavailable for selection, it is omitted from the list (rather than displayed as unavailable).

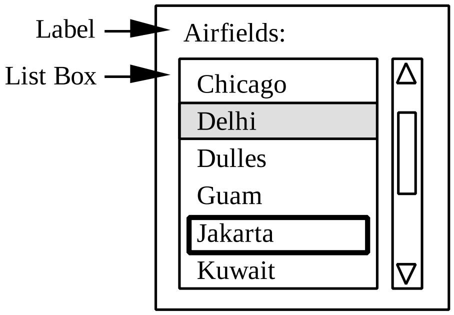


Figure 6-10. Example list box in Motif.

A list box is large enough to display up to eight items at a time, or all of the items if there are fewer than six. If the items are similar in length, the list is wide enough to read all of the items without scrolling horizontally; if items differ significantly in length, the list box is wide enough to display the items of average length and includes a horizontal scroll bar to allow users to read the longer items. When a list box is displayed, the state of the items in the list can be fixed or indeterminate. If the state is fixed, one of the items is selected when the list is displayed. If the state is indeterminate, none of the items is selected when the list is displayed.

The items in a list box are presented in sequential order based on the nature of the items and the sequence in which users expect them to occur (e.g., chronological, alphabetical, sequential, functional, by importance). For example, a list of port names is ordered alphabetically, and a list of messages by precedence, date-time group, or a combination of the two (e.g., date-time group within precedence). Selecting an item in a list box does not affect item order. When items are added to a list, they appear in their correct position (e.g., in numerical or alphabetical order) rather than at the end of the list. If the content of a list box is updated through an automatic process, the list does not scroll automatically to the item that was added; the list box scrolls only in response to a user action (e.g., using a scroll bar).

> Motif Only: A list box can support single or multiple selection.
>
> MS Windows Only: A list box supports single selection. A multiple selection list box is used when users need to select multiple discontiguous items. This type of list includes a check box indicator preceding each item (as a visual cue that multiple items can be selected). Clicking BLeft on an item selects it and displays a check mark in the indicator.

6.9.2 Behavior

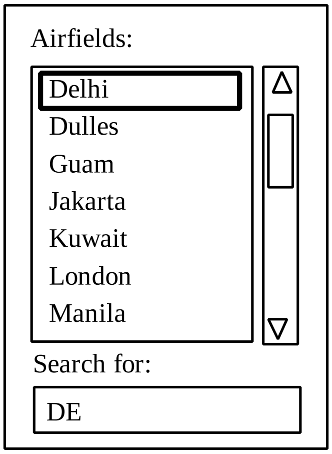
6.9.2.1 Navigation and Selection

Clicking BLeft on a list item selects it. If range and/or disjoint selection are available in the list, they are performed as defined in table 3-1. If the list is in a window with a default action, double clicking BLeft on an item selects it and executes the action.

When a list box has focus, UP and DOWN navigate to the previous and next items in the list, with no wrapping between the last and first items. PAGEUP and PAGEDOWN navigate to the item one page up and down in the list. CTRL+HOME and CTRL+END navigate to the first and last items in the list.

6.9.2.2 Incremental and Speed Search

> Motif Only: The application supports incremental search in lists containing more than 50 items; incremental search may be provided in lists with less than 50 items. This search capability is provided by including a text box with the list box, as shown in figure 6-11. The text box may be placed either above or below the list box. Users type the character(s) to be searched in the text box or enter wild card characters (see section 12.1.5) to search for specific text patterns. RETURN scrolls the list to the first occurrence of an item that matches the letter(s). Users can scroll through this part of the list to locate the item desired or type additional characters to narrow the search further.



Search for: DE

Figure 6-11. Example list and text box used in an incremental search in Motif.

> MS Windows Only: When a list box has focus and users type a character, the list scrolls to the first instance of an item that begins with that letter, the location cursor moves to the item, and it is selected. When users type the character again, the list scrolls (as needed), the location cursor moves to the next item that starts with the character, and it is selected.

In both incremental and speed search, if the character(s) typed do not match any of the items in the list, users receive feedback (e.g., an auditory signal, a message in the status bar, or a message window) to indicate that no match was found. Both search and incremental search are not case-sensitive; if the search has to be case-sensitive, then this information is provided to users (e.g., as part of the label, in the status bar of the window).

6.10 Drop-Down List Boxes

6.10.1 Appearance

A drop-down list, shown in figure 6-12, consists of a text area showing the currently selected item and a down-pointing arrow button which, when activated, displays a list box. The application includes a label with the drop-down list that describes its contents. The label is placed to the left of or above the list and is followed by a colon. The first letter of each word in the label is capitalized, except for prepositions and articles. If the label is placed above a drop-down list box, it is aligned with the left edge of the box. The text area is wide enough to display the longest item in the list.

> MS Windows Only: When a drop-down list box is displayed, the text area is blank if the state of the list box is indeterminate.

The list box includes a vertical scroll bar to the right of the list when the number of items exceeds the space available. The items in the list box are presented in sequential order based on the nature of the items and the sequence in which users expect them to occur (e.g., chronological, alphabetical, sequential, functional, by importance).

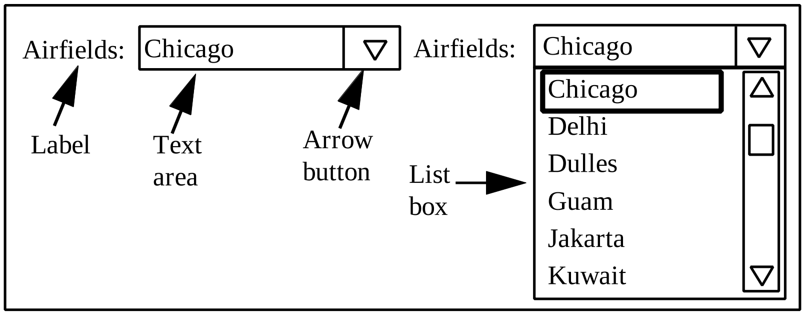


Figure 6-12. Example drop-down list box in Motif.

6.10.2 Behavior

Pressing or clicking BLeft on the text area or arrow button displays the list box, with focus on the list item that matches the one in the text area. Releasing or clicking BLeft on a list item selects it, dismisses the list box, and displays the item in the text area. Clicking on the text area or arrow button a second time or clicking outside them dismisses the list box.

When a drop-down list box has focus, DOWN (and SPACE in Motif) displays the list and highlights the list item that matches the one in the text area. UP and DOWN navigate between items, with no wrapping between the last and first items.

> Motif Only: When a list item has focus, RETURN selects it, dismisses the list box, and displays the item in the text area. ESC dismisses the list box.
>
> MS Windows Only: Moving focus to a list item selects the item and displays it in the text area. ESC, ALT+UP, and ALT+DOWN dismiss the list box.

6.11 Combo Boxes

6.11.1 Appearance

A combo box, shown in figure 6-13, consists of a text box showing the currently selected item and a list box displayed below the text box. The application includes a label with the combo box that describes its contents; the label is placed to the left of of the text box and is followed by a colon. The first letter of each word in the label is capitalized, except for prepositions and articles. If the label is placed above a combo box, it is aligned with the left edge of the box. The text box is the same width as the list box, with both wide enough so that all of the items are visible in the list. The list box includes a vertical scroll bar to the right of the list when the number of items exceeds the space available. The items in the list box are presented in sequential order based on the nature of the items and the sequence in which users expect them to occur (e.g., chronological, alphabetical, sequential, functional, by importance). If users need to select none of the items in the box, an item labeled None is included in the list; this item is displayed in the text box if selected.

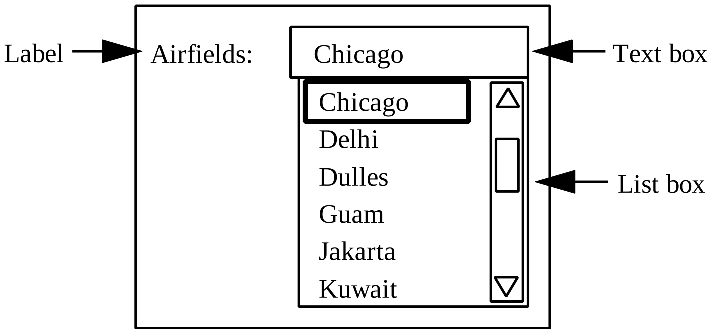


Figure 6-13. Example combo box in Motif.

6.11.2 Behavior

Clicking BLeft on an item in the list box selects it and displays it in the text box. When the combo box has focus, the text in the text box is highlighted; when users begin to type, the text is overwritten.

> MS Windows Only: As users type in the text box, the first item in the list box that begins with the characters being typed highlights.

When a combo box has focus, DOWN navigates to the list and highlights the list item that matches the one in the text box. UP and DOWN navigate between items, with no wrapping between the last and first items. LEFT and RIGHT navigate between characters in the text box.

> Motif Only: When a list item has focus, SPACE selects it and displays the item in the text box.

> MS Windows Only: Moving focus to a list item selects the item and displays it in the text box.

6.12 Drop-Down Combo Boxes

6.12.1 Appearance

A drop-down combo box, shown in figure 6-14, consists of a text box showing the currently selected item and a down-pointing arrow button which, when activated, displays a list box. The application includes a label with the drop-down combo box describing its contents; the label is placed to the left of or above the text box and followed by a colon. The first letter of each word in the label is capitalized, except for prepositions and articles. If the label is placed above a drop-down combo box, it is aligned with the left edge of the box. The text box is the same width as the list box, with both wide enough so that all of the items are visible in the list. The list box includes a vertical scroll bar to the right of the list when the number of items exceeds the space available. The items in the list box are presented in sequential order based on the nature of the items and the sequence in which users expect them to occur (e.g., chronological, alphabetical, sequential, functional, by importance). If users need to select none of the items in the box, an item labeled None is included in the list; this item is displayed in the text box if selected.

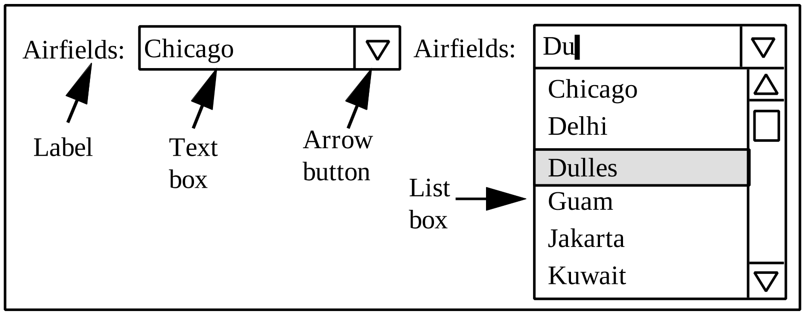


Figure 6-14. Example drop-down combo box in MS Windows.

6.12.2 Behavior

Pressing or clicking BLeft on the arrow button displays the list box, with focus on the item that matches the one in the text box. Releasing or clicking BLeft on a list item selects it, dismisses the list box, and displays the item in the text box. Clicking on the arrow button a second time dismisses the list box.

When a drop-down combo box has focus, the text in the text box is highlighted; when users begin to type, the text is overwritten.

> Motif Only: When the text box has focus, UP and DOWN display the list box and highlight the item that matches the one in the text box.
>
> MS Windows Only: When the text box has focus, UP and DOWN cycle through the list items, displaying the previous or next one in the text box. When the text box has focus, ALT+UP and ALT+DOWN display the list box and highlight the item that matches the one in the text box.

When the list box has focus, UP and DOWN navigate between items, with no wrapping between the last and first items. When the text box has focus, LEFT and RIGHT navigate between characters in the text box.

> Motif Only: When a list item has focus, RETURN selects it and displays the item in the text box. ESC dismisses the list box.
>
> MS Windows Only: Moving focus to a list item selects the item and displays it in the text box. ALT+UP, ALT+DOWN, and ESC dismiss the list box.

6.13 Spin Boxes

6.13.1 Appearance

A spin box is used to select from a set of mutually exclusive values that have an ordered or natural sequence (e.g., numeric, chronological, alphabetical). A spin box consists of a text area and a pair of arrow buttons. The arrow buttons are oriented either vertically (i.e., one up-pointing and one down-pointing), as shown in figure 6-15, or horizontally (i.e., one left-pointing and one right-pointing). One or both of the arrow buttons can be placed to the left or right of the text area.

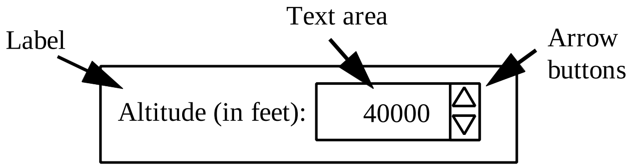


Figure 6-15. Example spin box in Motif.

The application includes a label with the spin box that describes its contents; the label is placed to the left of or above the box and is followed by a colon. The first letter of each word in the label is capitalized, except for prepositions and articles. If the label is placed above a spin box, it is aligned with the left edge of the box. The text area can be editable (e.g., if the entries in the spin box do not include all possible values) or noneditable (e.g., if the entries include all possible values).

A spin box normally contains no more than 20 ordered values. If spin boxes are used to enter data such as date/time group or latitude/longitude, separate spin boxes are provided for each part of the entry. Spin boxes can be used with text boxes for data entry (e.g., separate spin boxes for month and day and a text box for typing the year).

6.13.2 Behavior

Clicking BLeft on an arrow button steps through the values in the spin box in the arrow direction and displays them one at a time in the text area. Pressing BLeft on an arrow button steps through the values continuously in the arrow direction. In both cases, the entries can wrap when the first or last value is reached. If the spin box is editable, users can also type a value directly in the text area.

When a spin box has focus, the arrow keys spin through the values one at a time in the arrow direction, with wrapping from the last to the first value. If the spin box is not editable, HOME and END spin to the first and last value. If the spin box is editable, HOME and END navigate to the beginning and end of the text in the box.

6.14 Option Menus (Motif Only)

6.14.1 Appearance

An option menu, shown in figure 6-16, is displayed when an option button is activated. The application includes a label with the option menu describing its contents; the label is placed to the left of or above the option button and is followed by a colon. The first letter of each word in the label is capitalized, except for prepositions and articles. If the label is placed above an option button, it is aligned with the left edge of the button. The option button displays the menu option that is currently selected and includes a bar graphic. The button is wide enough to display the longest menu option and the bar graphic; the graphic does not obscure any text in the button. The menu contains no less than two or more than 12 options and does not have any submenus.

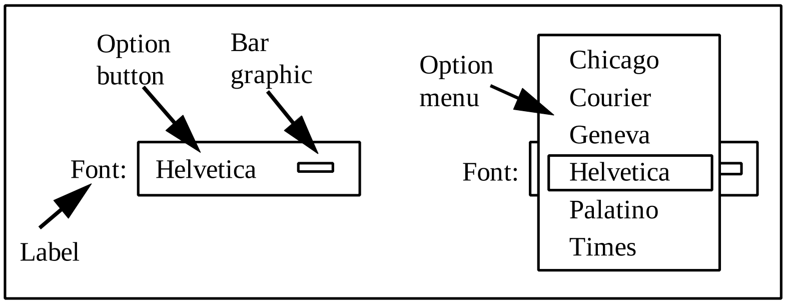


Figure 6-16. Example option menu in Motif.

6.14.2 Behavior

Two methods are available for selecting an option in an option menu. In the first method, pressing BLeft on an option button activates (i.e., displays) the menu; dragging the pointer to an option and releasing BLeft activates it, dismisses the menu, and displays the option in the button. Dragging the pointer off the menu and releasing BLeft dismisses the menu without activating an option. In the second method, clicking BLeft on an option button activates the menu; clicking BLeft on an option activates it, dismisses the menu, and displays the option in the button. Moving the pointer off the menu and clicking BLeft dismisses the menu without activating an option. BRight can also be used to display an option menu and activate an option.

When the option button has focus, SPACE displays the menu, with the location cursor on the option that was previously selected. The arrow keys navigate between options, with wrapping between the last and first options. RETURN and SPACE activate an option, dismiss the menu, and display the option in the button. ESC dismisses the menu without selecting an option.

6.15 Scales

6.15.1 Appearance

A scale, shown in figure 6-17, is used to set a value in a range. The scale consists of a scale bar and an indicator for setting a scale value.

> Motif Only: A scale displays the value currently set above or next to the slider.
>
> MS Windows Only: The application includes a label with the scale to display the value currently set; the label is placed above or next to the slider.

A scale can have arrow buttons for setting a scale value, tick marks representing the range of available values, and labels indicating the minimum and maximum values for the scale. The application includes a label with the scale describing its contents; the label is placed to the left of or above the scale and is followed by a colon. The first letter of each word in the label is capitalized, except for prepositions and articles. If the label is placed above the scale, it is aligned with its left edge. A scale can be oriented horizontally or vertically.

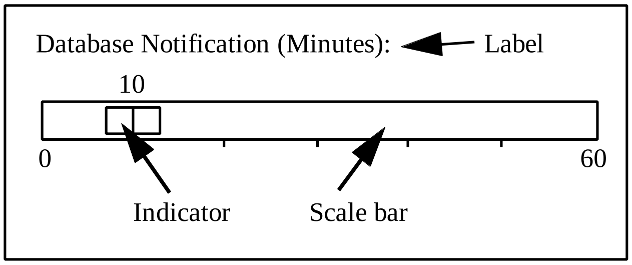


Figure 6-17. Example scale in Motif.

<u>Gauges</u>. A gauge, shown in figure 6-18, is a display-only version of a scale for presenting values that users cannot change. For example, a Working window can include a gauge to provide dynamic feedback to users on the percent of a process that is complete. If a gauge is used to indicate processing, the bar fills dynamically from left to right to indicate the relative amount of processing completed. If the exact percentage is important, the application includes a label with the gauge indicating the current percentage value, and both the bar and label are updated dynamically. Because the values displayed by a gauge cannot be changed, a gauge does not include an indicator or arrow buttons. However, a gauge is able to receive focus so that users can access Help about it.

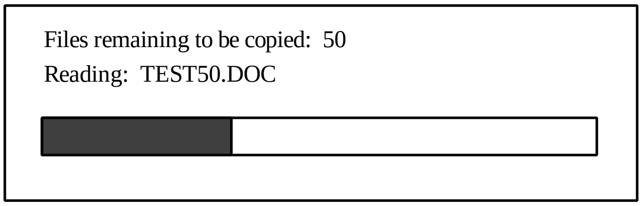


Figure 6-18. Example gauge in Motif.

6.15.2 Behavior

If the scale has arrow buttons, clicking BLeft on an arrow moves the indicator one unit at a time in the arrow direction. Pressing BLeft on the scale bar moves the indicator one large increment (defined by the tick marks, if provided) at a time in the arrow direction. Dragging the indicator with BLeft moves it in the pointer direction..

When the scale has focus, the arrow keys move the indicator one increment in the arrow direction. CTRL in combination with the arrow keys move the indicator one large increment, and HOME or CTRL+HOME and END or CTRL+END move the indicator to the minimum and maximum scale values.